

International School of Medicine / Medicine (English)

2023 - 2024 Academic Year

ORGANIC CHEMISTRY

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
ORGANIC CHEMISTRY	ISM1014669	Yearly	22+6	0	2
Prerequisites Courses					
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Committee Course				
Course Coordinator	Lect.Dr. Essam HANASHALSHAHABY				
Name of Lecturer(s)	Lect.Dr. Essam HANASHALSHAHABY				
Assistant(s)					
Aim	The organic chemistry course ensures that students learn about the chemical structures and reactions they will encounter in medical biochemistry topics. The course aims for students to learn the structures of organic compounds, understand the rules of their nomenclature, and learn about the structures of macromolecules found in living organisms.				
Course Content	This course contains; Atom structure and chemical bonds in biochemistry, The molecular structure of water and its role in metabolism, Structure and nomenclature of hydrocarbons, aromatic compounds, alcohols, ethers, aldehydes, and phenols, Structure of carboxylic acids, amines, and esters, and their reactions in metabolism, Carbohydrates, their general characteristics, and classification, Structure and classification of lipids, Characteristics, structures, and reactions of amino acids, Introduction to protein structure, Structure of nucleic acids, Types of concentration, buffers, acids, and bases, Methods used in the analysis of organic molecules (spectroscopy methods: UV, IR, and NMR; chromatography methods: TLC, GC, HPLC, and GPC).				
Course Learning Outcomes		Teaching Methods	Assessment Methods		
1. Identifies the structures of organic compounds,		12, 16, 9	A, G		
2. Names organic compounds,		12, 16, 9	A, G		
3. Describes the structures of organic macromolecules (carbohydrates, lipids, proteins, nucleic acids)		12, 16, 9	A, G		
4. Lists laboratory tools and methods used for biochemical analyses.		12, 16, 9	A, G		
Teaching Methods	12: Problem Solving Method, 16: Question - Answer Technique, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam, G: Quiz				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Atom structure and chemical bonds in biochemistry				
2	The molecular structure of water and its role in metabolism				
3	Structure and nomenclature of hydrocarbons, aromatic compounds, alcohols, ethers, aldehydes, and phenols				
4	Structure of carboxylic acids, amines, and esters, and their reactions in metabolism				
5	Carbohydrates, their general characteristics, and classification				
6	Structure and classification of lipids				
7	Characteristics, structures, and reactions of amino acids				
8	Introduction to protein structure				
9	Structure of nucleic acids				
10	Types of concentration, buffers, acids, and bases				
11	Methods used in the analysis of organic molecules (spectroscopy methods: UV, IR, and NMR; chromatography methods: TLC, GC, HPLC, and GPC)				
Evaluation Methods		Weight(%)			
Midterm Exam		40			
General Exam		60			

Resources

- Organic Chemistry, John McMurry, 8th edition (2011), Brooks/Cole Cengage Learning
- Solomons' Organic Chemistry, T.W. Graham Solomons, Global Edition (2017), Wiley